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TRANSMITTAL FORM

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First Named Inventor	Dale C. Flanders
Art Unit	1725
Examiner Name	Johnson, Jonathan J.
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ENCLOSURES (*Check all that apply*)

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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual	J. Grant Houston
Signature	
Date	April 22, 2004

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: April 22, 2004

Typed or printed	Claire J. Handalian		
Signature	Claire J. Handalian	Date	April 22, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re:	Dale C. Flanders et al.		
Serial No:	09/645,827	Group:	1725
Filed:	August 25, 2000	Examiner:	Johnson, Jonathan J.
For:	Optical System Production System	Confirmation No:	4350

Date: April 22, 2004

APPEALANTS' BRIEF

Mail Stop Appeal Brief- Patents
Assistant Commissioner for Patents
P.O. Box 1450,
Alexandria, Virginia 22313-1450

Sir:

This is the Applicants' appeal from the final Office Action, mailed July 1, 2003 (Paper No. 17).

A three-month extension of time is requested for this response.

Real Party of Interest

Axsun Technologies, Inc. is the real party in interest.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-20 are pending in this application. Claims 1-8 and 17-20 stand finally rejected pursuant to the outstanding Office Action.

Status of Amendments

All amendments have been entered. There were no post final amendments or proposed amendments.

Summary of the Invention

The present claimed invention is directed to an optical system production line. Fig. 26, from the instant application, best summarizes the claimed invention.

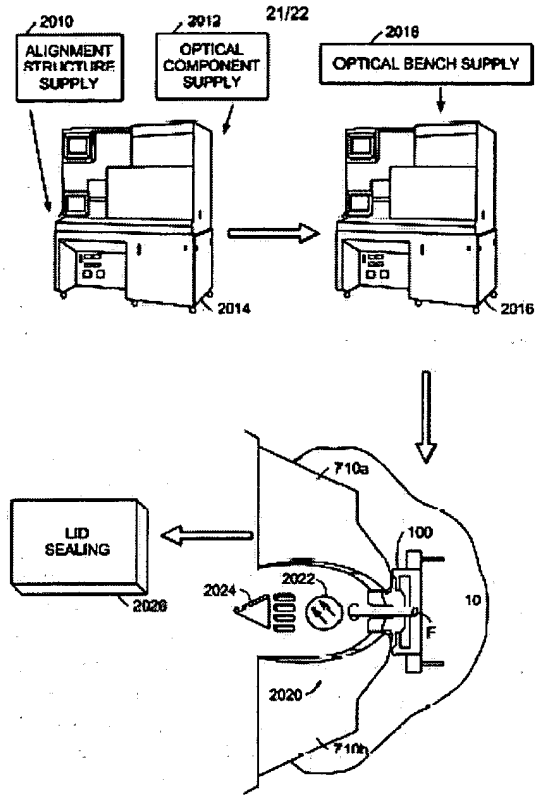

FIG. 26

An alignment structure supply 2010 and an optical component supply 2012 are accessed by a first pick and place machine 2014, which assembles the mounting structures and optical elements into optical components. This first pick and place 2014 then functions as an optical component supply that provides optical components, comprising alignment structures with attached optical elements.

A second pick and place machine 2016 receives optical benches from an optical bench supply 2018 and then attaches the optical components to the optical benches.

Finally, an optical system aligner 2020 characterizes positions of the optical components, which have been attached to the optical benches, and mechanically adjusts

the relative positions of the optical components. In the illustrated example, this is achieved by the jaws 710A, 710B, engaging the alignment structure 100 to move the fiber optical component F relative to the bench 10.

Issues

1. Whether Claims 1-8 and 17-20 are anticipated by the Wolfgang, *et al.* article (SPIE Vol. 2906, Microrobotics: Components and Applications).

Grouping of Claims

Claims 1-8 and 17-20 stand or fall independently of each other.

Argument

Neither claim 1 nor claim 17 is anticipated by the Wolfgang article.

The present claimed invention of claim 1, for example, requires an "optical system aligner that characterizes the positions of optical components, which have been attached to the optical benches, and mechanically adjusts the relative positions of the optical components."

The Wolfgang article does not show a system that includes this subsequent aligner system, providing the function of adjusting the mechanical components that have been attached to the optical bench.

Instead, Wolfgang article discloses a system in which the UTH's are placed on a bench with a gripper, as illustrated in its Fig. 8A. The UTH's are then fine positioned until they are properly aligned in the optical link. See Fig. 8B of the Wolfgang article. Only then are the UTH's attached to the optical bench as shown in the Fig. 8C of the Wolfgang article.

In short, the Wolfgang article neither shows nor suggests an optical system aligner that characterizes positions of the optical components, which have been attached to the optical benches and mechanically adjusts the relative positions of the attached optical components.

The advantage of the present invention relative to the system disclosed in the Wolfgang article is that in some applications, the present invention can achieve sub-micron alignment accuracies with very high yields. This would be difficult to achieve using the Wolfgang process, in the opinion of the inventors, with current technology. This is because the laser welding step can distort the alignment due to the concomitant temperature cycling. In contrast, with the present invention, the alignment is performed after attachment.

In a similar vein, claim 17 requires "means for characterizing the positions of the optical components attached to the optical benches, and for mechanically adjusting the relative positions of the optical components attached to the benches." No *prima facie* equivalency exists between this element and the system disclosed in the Wolfgang article. The Wolfgang article does not show something which characterizes positions of optical components that have already been attached to the optical benches.

Turning to claims 2 and 18, a pick and place machine that secures optical components to the benches by solder bonding is described. The Wolfgang article, in contrast, teaches the use of laser welding. Thus, there is no anticipation of these claims.

Claims 7 requires the use of a flip chip bonder, which is not shown or suggested by the applied reference.

The reason why the rejection of the claims has been maintained in spite of the deficiencies of the applied reference is that the Examiner is admittedly refusing to give all of the claimed invention patentable weight. For example, in the final Office Action page 2 last paragraph to page 3 first paragraph, it was stated that "an aligner that characterizes the positions of the optical components on the bench and mechanically adjusts the relative position...an aligner that activates/energizes the workpiece and detects an optical signal and adjusts the components...[are] process limitation[s] that hold little patentable weight in an apparatus claim."

In a similar vein, the Examiner is refusing to consider all of the functional features of the "means" clause of claim 17. On page 4 of the Final Office Action, it is

stated that "[i]t is the examiner's position that although adjusting the relative position of the optical component after being attached to the optical bench is a difference between the prior art and the instant invention, it does not rise to the level of overcoming the substantial similarities outlined in Kemco." In short, the Examiner is conceding that the applied art does not perform the identical claimed function yet still maintains an anticipation rejection.

Applicants further point out that the present claimed invention does not include process limitations. Instead, it describes such components as a system aligner, according to their function and operation. There are no process limitations in claim 1, for example. Thus, the basis by which the Examiner has assigned "little patentable weight" is not accurate.

Applicants respectfully urge that the claim should be read as a whole, assigning all the elements patentable weight. The Examiner's standard for "assigning little patentable weight" to functional limitations is not supported by the case law. Moreover, the standard seems arbitrary. Applicants questions how much is "a little".

For the foregoing reasons, Applicants believe that the pending rejections should be withdrawn, and that the present application should be passed to issue. Should any questions arise, please contact the undersigned.

Respectfully submitted,

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Appendix

1. (previously presented) An optical system production line, comprising
an optical bench supply that provides optical benches;
a component supply that provides optical components;
a pick-and-place machine that receives optical benches from the bench supply, picks optical components from the optical component supply, and attaches the optical components to the optical benches; and
optical system aligner that characterizes the positions of the optical components, which have been attached to the optical benches, and mechanically adjusts the relative positions of the optical components.

2. (original) An optical system production line as claimed in claim 1, wherein the pick-and-place machine secures the optical components to the bench by solder bonding.

3. (previously presented) An optical system production line as claimed in claim 1, wherein the optical system aligner characterizes the positions of the optical components by activating optical links of optical systems on the benches, detecting optical signals after interaction with at least some of the optical components, and adjusting the optical components to optimize transmission of optical signals over the links.

4. (previously presented) An optical system production line as claimed in claim 1, wherein the optical system aligner energizes active components of optical systems on the benches and adjusts the optical components to optimize optical signal transmission through the systems from the active optical components.

5. (previously presented) An optical system production line as claimed in claim 1, wherein the optical system aligner energizes active components of optical systems and adjusts positions of at least one passive optical component in each of

the optical systems to optimize optical signal transmission from the active components to the at least one passive component.

6. (previously presented) An optical system production line as claimed in claim 1, wherein the optical system aligner energizes active components of optical systems and adjusts positions of at least two passive optical components in each of the optical system to optimize optical signal transmission between the passive components.

7. (original) An optical system production line as claimed in claim 1, wherein the pick and place machine is a flip-chip bonder.

8. (previously presented) An optical system production line as claimed in claim 1, wherein the optical system aligner comprises two jaws for engaging a mounting structure supporting the optical component and moving the structure relative to the bench.

9. (withdrawn) An optical system production method, comprising
supplying optical benches from an optical bench supply;
supplying optical components from a component supply;
receiving optical components from the optical component supply and optical benches from the optical bench supply at a pick-and-place machine;
attaching the optical components to the optical benches with the pick-and-place machine;
characterizing positions of the optical components, which have been attached to the optical benches; and
mechanically adjusting the relative positions of the optical components with an optical system aligner.

10. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of attaching the optical components to the optical benches with the pick-and-place machine comprises solder bonding the optical components to the optical benches.

11. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of characterizing the positions of the optical components comprises:

the optical system aligner activating optical links of optical systems;

detecting optical signals after interaction with at least some of the optical components; and

adjusting the optical components to optimize transmission of the optical signals in the optical systems.

12. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of characterizing the positions of the optical components comprises:

energizing active components of optical systems; and

adjusting the optical components to optimize optical signal transmission through the optical systems from the active optical components.

13. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of characterizing the positions of the optical components comprises:

energizing active components of optical systems; and

adjusting a position of at least one passive optical component in each of the optical systems to optimize optical signal transmission from the active components through the optical systems.

14. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of characterizing the positions of the optical components comprises:

energizing active components of optical systems; and

adjusting positions of at least two passive optical components in each of the optical systems to optimize optical signal transmission between the passive components.

15. (withdrawn) An optical system production method as claimed in claim 9, wherein the pick and place machine is a flip-chip bonder.

16. (withdrawn) An optical system production method as claimed in claim 9, wherein the step of mechanically adjusting the relative positions of the optical components comprises engaging mounting structures supporting the optical components and moving the structures relative to the optical benches with the optical system aligner.

17. (previously presented) An optical system production line, comprising
an optical bench supply for providing optical benches;
a component supply for providing optical components;
a pick-and-place machine for receiving optical benches from the bench supply, and for picking optical components from the optical component supply, and for attaching the optical components to the optical benches; and
means for characterizing the positions of the optical components attached to the optical benches, and for mechanically adjusting the relative positions of the optical components attached to the benches.

18. (previously presented) An optical system production line as claimed in claim 17, further comprising the pick-and-place machine securing the optical components to the benches by solder bonding.

19. (previously presented) An optical system production line as claimed in claim 17, further comprising the characterizing and adjusting means characterizing the positions of the optical components by activating optical links of optical systems on the benches, detecting optical signals after interaction with at least some of the optical components, and adjusting the optical components to optimize transmission of optical signals over the links.

20. (previously presented) An optical system production line as claimed in claim 17, further comprising the characterizing and adjusting means energizing active components of optical systems and adjusting positions of at least one passive

optical component in each of the optical systems to optimize optical signal transmission from the active components to the at least one passive component.